Topic 2 Handout: Designing Structures

1. What year was the train bridge near Lethbridge built? (p. 282)

2) What machines would not have been around then that we would use today to construct large structures?

**When designing projects people must consider a number of things:**

**A)** **Function**

3) What are two functions of a bridge? (p. 283)

4) What are four functions of running shoes? (p. 283)

**B) Aesthetics**

5) What is aesthetics? (p. 284)

6) Why do designers worry about aesthetics? (p. 284)

**C) Safety**

7) When you load an elevator, what do you think will happen if you overload the weight limit? (p. 285)

8) What is a margin of safety? (p. 285)

9) How does cost effect the margin of safety? (p. 285)

**D) Materials**

10) Why is concrete considered to be a composite material? (p. 286)

11) Why is it so strong? (p. 286)

12) Why is a car windshield considered to be a layered material? (p. 286)

13) Describe the four possible things that an architect, an engineer or a designer might consider when choosing materials: (p. 288-289)

**E) Joints**

14) Where are structures the weakest? (p. 290)

15) What are mobile joints? Give three examples.(p. 290)

16) What are rigid joints? Give three examples.(p. 290)

17) What are three examples of fasteners? How do they weaken a structure?(p. 290)

18) What are three examples of interlocking shapes? (p. 291)

19) What are two examples of ties? (p. 291)

20) What is the difference between welding and soldering? (p. 292)